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Integration from patient registration to WHO reporting in Azerbaijan and Georgia

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Background: Multiple electronic systems are implemented in countries to strengthen disease surveillance, but they often struggle integration to achieve data completeness, quality, timeliness, transparency and reliability throughout the reporting chain [2]. Azerbaijan and Georgia provide an example of successful implementation of integrated disease surveillance solution providing transparent data reporting within country and with international entities.

Methods & Materials: Azerbaijan and Georgia implemented open source Electronic Integrated Disease Surveillance System (EIDSS) as a national surveillance tool for public health and veterinary services at more than 350 locations. EIDSS strengthens national disease surveillance providing a secure way to collect and share data in near-real time, analyze and integrate information on humans, animals and natural vectors diseases. EIDSS was integrated with the Health Management Information System in Georgia and Tuberculosis Surveillance System in Azerbaijan, which track patient visits and specific diseases at the primary healthcare locations. EIDSS was also integrated with the WHO's Centralized Information System for Infectious Diseases in Azerbaijan and Georgia [1]. This electronic bridge since 2014 supports measles and rubella cases direct reporting from EIDSS to WHO.

EIDSS Human and veterinary surveillance networks in Azerbaijan and Georgia

Results: The vertically integrated systems overcome technical barriers through transparent notifications sharing from the primary healthcare to WHO through national disease surveillance. Data completeness and quality is improvement through system monitoring, collected data reviews and automated data entry quality control. Data accessibility is improved with reliable electronic storage and nationwide system availability on desktop, web and Android. EIDSS-WHO electronic reporting completely substituted the original manual submission process. EIDSS-FAO reporting component is under development at the moment.

Conclusion: Implementation of EIDSS in Georgia and Azerbaijan has significantly improved transparency and reliability (as official government tool) of reporting in Georgia and Azerbaijan and reinforces accurate international reporting including IHR. It may also consider establishing horizontal ties to support regional cooperation and data exchange.

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Hospital based sentinel surveillance of bacterial meningitis in India

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Background: Pentavalent vaccine (a combination vaccine which protects against five killer diseases- diphtheria, pertussis, tetanus, hepatitis B and *Haemophilus influenzae* type B) is being introduced in various states of India as a part of Universal Immunization Programme. In this context it is critical to establish sentinel sites across India for surveillance of *H.influenzae* type B meningitis and use this opportunity also for surveillance of pneumococcal and meningococcal meningitis. Keeping this in mind a hospital-based sentinel surveillance network was established at 11 places across the country and this study reports the results of first three years of this surveillance program

Methods & Materials: This study was conducted in six states of India through 11 hospital based sentinel sites. Children aged one to 59 months who met with standard case definitions were included in the study and their sterile biological specimens were processed for laboratory identification of bacterial pathogens. Further characterizations of bacterial pathogens were in study reference laboratory. Reference laboratory reconfirmed bacterial identify and further characterized the isolates to identify serotypes and antimicrobial susceptibility profile.

Results: A total of 10202 cases were suspected for bacterial meningitis in study population. Laboratory confirmed incidence rates for *S. pneumonia*, *H. influenza* and *N. meningitidis* in this study is found to be around 3.80%, 1.26% and 0.24% respectively. *S. pneumoniae* appears to be the predominant pathogen among laboratory identified bacterial pathogens with 71.7%, followed with *H.influenzae* (23.8%) and *N.meningitidis* (4.4%). For *S.pneumoniae*, 15% of positive cases had serotype data, showing serotypes 19F, 6B, 14, 6A and 14 were the predominant serotypes in India.

Conclusion: Invasive bacterial disease appears to be a major problem in Indian children with *S.pneumoniae* dominating and

H.influenzae decreasing in the pathogens list. If pneumococcal conjugate vaccine-13 incorporated into Universal Immunization Programme, it can provide protection against 79% of serotypes responsible for Invasive pneumococcal diseases in India. However continued surveillance representing all parts of the country is necessary to understand the complete picture of Invasive bacterial diseases in India

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Evaluation of passive pharmacovigilance surveillance system in Tanzania – a review of secondary data

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Background: Tanzania Food and Drugs Authority (TFDA) routinely collects adverse drug reactions (ADRs) data to detect, prevent ADRs, protect public health, and reduce avoidable costs to the health care system through passive pharmacovigilance surveillance. Under – reporting is a challenge and limited epidemiological evaluations of the system have been conducted. This study evaluated the system to determine performance of the system in meeting its objectives and its attributes and provide recommendations

Methods & Materials: CDC guidance (MMWR 2001) for evaluation of public health surveillance system was used. Review of secondary data for the period 2006 – 2013, and key informant interviews were conducted.

Results: Between 2006 and 2013, 630 ADRs cases were reported, 108 (1.4%) cases reported in 2013 compared to 8000 expected cases annually. All interviewed health care providers (HCPs), know ADRs case definitions, three trained on ADRs surveillance, two send reports to TFDA. Among 36 sampled reported forms, 27 (75%) were incompletely filled, 7(19.4%) correctly filled, 9(25%) received at TFDA timely. From January –December 2013, 108 cases were located in the data base while 80 cases found in reported forms. Among seven visited health facilities, five had only yellow forms and two reported ADRs cases to TFDA. Data management and analysis is done at TFDA headquarters.

Conclusion: The system met some of its objectives: it is flexible, stable and representative but not simple, acceptable, and has poor data quality and timeliness. HCPs and public awareness on ADRs reporting should be increased. The system should be integrated into government health administrative levels, including follow ups. Supportive supervision and data transmission mechanisms should be improved.

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Device-associated infection rates with microbiological profile and antibiogram pattern from an adult medical-surgical ICU of a tertiary care hospital

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Background: Intensive care unit (ICU) is considered the epicenter for health care associated infections (HAIs) due to the underlying disease severity with comorbidities, increased use of invasive interventions and wide spectrum antibiotics. Ubiquitous medical devices, continuing to be essential in permitting lifesaving treatment among critically ill patients, unfortunately are a major cause of HAIs especially in the ICUs.

Methods & Materials: A prospective surveillance was implemented in a 15 bedded adult medical surgical ICU of a 2500 bedded tertiary care hospital from March to August 2015. Central line-associated bloodstream infection (CLABSI), ventilator-associated pneumonia (VAP) and catheter-associated urinary tract infection (CAUTI) were defined and the DA-HAI rates were calculated using the Centers of Disease Control National Nosocomial Infections Surveillance System and National Healthcare Safety Network guidelines.

Results: During the study period 564 patients were admitted for 2192 days. Fifty four episodes of DAI were documented, 55.55% belonging to age group 31-60 years with male to female ratio of 1.57. Average length of stay was 8-14 days in 37% of the 54 DA-HAI cases among whom 68.52% had a fatal outcome. DA-HAI rates for VAP, CLABSI and CAUTI were 16.74, 10.33 and 7.31 respectively with the overall DANI (device associated nosocomial infection) rate of 24.64 DAI per 1000 ICU days. The device utilization ratio was maximum for urinary catheter (0.99) followed by 0.68 for ventilator and 0.57 for central line. The overall ALOS (average length of survival) was 6.62 days whereas the crude overall case-fatality was 68.52% for patients who acquired a DA-HAI and 38.24% for those without a DA-HAI, yielding an overall crude excess mortality of 30.28%. Overall 40.74% of DA-HAIs were caused by Klebsiella species followed next by Acinetobacter species in 25.93%. Cephalosporins were the most resistant (80-100%) against gram negative organisms while imipenem (79.16%) and vancomycin (75%) showed maximum sensitivity to gram negative and positive organisms respectively. No colistin or linezolid resistant gram negative or gram positive isolated was reported.

Conclusion: Surveillance of DA (device associated) HAIs allows a valid estimation of the effectiveness of quality improvement activities or any new infection control measure adopted.

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